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FROM: Woody Myers – WCR

SUBJECT: Foremost Farms USA Clayton - Groundwater Evaluation Report, Addendum  
WPDES Permit # WI-00030182

This document is an addendum to the April 9, 2020 Groundwater evaluation. It includes only the newly installed wells associated with the up-graded seepage cells.

## **Groundwater Evaluation Summary**

### **Monitoring wells Outfall 002 Seepage Cells**

<b>Well ID</b>	<b>Well Standard</b>	<b>Well Position</b>
818	TBD	TBD
819	TBD	TBD
820	TBD	TBD

### **Site Information**

The Foremost Farms USA Clayton facility is located at 100 North Main Street, Clayton, Polk County. This is an industrial Wastewater Treatment System facility. Wastewater is currently treated and discharged to a surface water and Groundwater via two Land Treatment Systems. The absorption ponds (seepage cells) are located in the; SW ¼ of the NE ¼ of Section 13, T33N, R15W, Town of Clayton and the spray irrigation fields are located in the SW ¼ of the NW ¼ and the NW ¼ of the SW ¼ of Section 15, T33N, R14W, Town of Clayton.

The absorption ponds are in the process of being upgraded for continuous use. They are located in the SW ¼ of the NE ¼ of Section 13, T33N, R15W, town of Clayton.

### **Geology**

The bedrock under the facility is the Prairie du Chien Group. This group includes the Shakopee and Oneota Formations with the Willow River, New Richmond, Hager City and Stockton Hill Members. The Prairie du Chien is comprised of dolomite with some variation in the New Richmond Member which ranges from a sandstone to siltstone. Bedrock was not encountered during installation of the groundwater monitoring wells but is anticipated to be no deeper than 100 feet below ground surface (bgs). The regolith consists of fine to course sand with interbedded silt layers. Surface soil primarily consists of the Haugen sandy loam and the Anigon silt loam.

### **Hydrogeology**

Calculated groundwater elevation ranges between 1184 and 1192 feet above mean sea level (msl). Depth to groundwater was reported to be between 3 and 32 feet bgs. The depth to groundwater measurements are highly suspect. From June 27, 2017 to September 12, 2018 there is no variation in the depth to groundwater. Due to the suspect data groundwater flow direction was estimated. Groundwater flow

direction was estimated to be predominantly to the south southwest. Region groundwater is to the west in this region of Polk County. The site is directly adjacent and north of Little Moon Lake.

### Groundwater Monitoring Network and Frequency

Groundwater samples were to be collected monthly from 818, 819 and 820 from May through June 2020.

Well Name	Well Number	Casing Top	Ground Surface	Screen Top	Screen Bottom	Screen Length	Well Type
MW-01	818	1191.26	1189.8	1186.2	1176.2	10.0	WT
MW-02	819	1203.66	1201.4	1195.4	1185.4	10.0	WT
MW-03	820	1192.97	1191.0	1189.0	1179.0	10.0	WT

All measurements in feet

WT-Water table Observation P-Piezometer O-Other

The groundwater samples are analyzed for the following parameters; Nitrogen, Nitrite + Nitrate, Chloride, Nitrogen, Ammonia, Nitrogen, organic, pH and Total Dissolved Solids (TDS). All of these parameters are analyzed for the aqueous or dissolved phase in groundwater. Established groundwater quality standards are found in s. NR140. 10 Table 1 Public Health Groundwater Quality Standards, and NR140.12 Table 2 Public Welfare Groundwater Standards. The thresholds of these standards are the Enforcement Standard (ES) and the PAL.

### Groundwater Standards - Current Permit WI-0003018-09

Parameter	PAL	ES	Source
Depth to Groundwater	N/A	N/A	Measured
Groundwater Elevation	N/A	N/A	Measured
Chloride	125 mg/l	250 mg/l	Table 2, NR 140
Nitrogen, Nitrite + Nitrate	4.0 mg/l (ACL)	10.0 mg/l	Calculated, Table 1, NR140
pH	5.7-7.7 su	N/A	Calculated
Nitrogen, Ammonia	0.97 mg/l	9.7 mg/l	Table 1, NR 140
Nitrogen, Organic	2.4 mg/l	N/A	Calculated
Total Dissolved Solids	370 mg/l	N/A	Calculated
Nitrogen Total Kjeldahl	N/A	N/A	Measured
Total Nitrogen	Discontinue	N/A	N/A

### Groundwater Conditions and Exceedances

Groundwater sampling results from this facility have been analyzed for each well to evaluate trends of regulated compounds in groundwater and to calculate PALs and ACLs where appropriate. The groundwater was evaluated by looking at approximately five years of monitoring results. PALs and ACLs are calculated from this time range.

### Chloride Results (mg/l)

Well	Sample Date		
	May 7, 2020	June 11, 2020	July 9, 2020
818	40.0	31.0	34.0
819	14.0	12.0	14.0
820	5.8	2.4	5.3

### **Conclusions**

There are no recommendations to change the groundwater sampling limits as set forth in the original groundwater evaluation. Due to the loading data provided during the emergency actions and the recent groundwater sampling results for chloride an effluent loading limit to the seepage cells of 900 mg/l is recommended. If groundwater results indicate this is too high for environmental conditions this level should be reduced. This loading limit will be evaluated during the next permit cycle and if warranted could potentially be incrementally increased.

### **Compliance Schedule Recommendations**

No additional Compliance schedule items.